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NEI Comments on the DOE Clean Hydrogen Production Standard Draft Guidance

November 14, 2022

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Washington, DC 20585

Submitted Via ***Cleanh2standard@ee.doe.gov***

Subject: Nuclear Energy Institute's Comments in Response to the DOE's Clean Hydrogen Production Standard Draft Guidance

Dear Dr. Satyapal:

The Nuclear Energy Institute (NEI) appreciates the opportunity to comment on the Department's Clean Hydrogen Production Standard (CHPS) draft guidance. Now is an exciting time in the energy transition. As we move to a decarbonized world, we will need innovative approaches to reducing emissions across all sectors of the economy. This reality creates enormous opportunity for hydrogen to help us create clean electrical, industrial and transportation sectors. While the prospect for hydrogen has never been higher, its value hinges entirely on the ability to produce hydrogen from low-carbon energy sources. DOE's draft guidance for CHPS will set the parameters for how low-carbon hydrogen is certified. This process will guide industry decisions for years and will impact, either positively or negatively, the successful adoption of hydrogen in the U.S. and global economy.

NEI represents the commercial nuclear technologies industry, with more than 330 members spanning 17 countries. We promote the peaceful use of nuclear energy and technologies through optimal industry performance, effective policies, and efficient regulation. Nuclear energy provides a fifth of U.S. electricity production and half of U.S. carbon-free electricity generation. In addition to the existing nuclear fleet, the next generation of nuclear reactors offers exciting new possibilities through innovative designs that unlock new markets. Nuclear energy has a key role to play in realizing the value of hydrogen. As the most reliable zero-carbon energy source in the world, nuclear energy can support the massive scale of hydrogen production needed to generate deep decarbonization. Whether using low-temperature electrolysis, high-temperature electrolysis, or

thermochemical processes, the current fleet and next generation of nuclear reactors are well suited to support a future hydrogen-based economy.

CHPS Comments

Valuing Existing Carbon-free Resources

The Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA) both created programs for developing clean hydrogen markets. The IIJA established the new Hydrogen Hubs program at DOE and the IRA included a new tax credit for clean hydrogen production. Both of these critical pieces of legislation recognized that we must use every tool in our toolkit to decarbonize the economy, starting with the resources already in place. As you are of course well aware, there are four pilot projects in the U.S. to demonstrate the production of hydrogen from existing nuclear power plants; we thank you for the important role you have played in those and other DOE hydrogen program innovations. In addition, the IIJA requires that at least one hydrogen hub utilize hydrogen produced from nuclear power. However, to make these hydrogen production products successful, the hydrogen produced from zero-carbon nuclear resource must be adequately recognized.

Building on the importance of including existing carbon-free resources, it's critical that DOE establishes standards that result in a functioning market for low-carbon hydrogen. Capital expenditures will be required to convert existing electricity generation facilities into hydrogen production centers. These expenditures will only occur if the market values the hydrogen produced from these zero-carbon facilities as low-carbon hydrogen. The foundation being laid by CHPS will be examined closely by the entities charged with making the hydrogen economy a reality. As discussions around "additionality" continue, DOE should consider the negative message this sends to investors and the repercussions including such a provision in CHPS would have on the rate of expansion in low-carbon hydrogen production. Mixed signals about the importance of using existing carbon-free resources to produce hydrogen risks significant underinvestment in production technology deployment. To act in accordance with the IIJA, the IRA, and the Administration's climate goals, DOE should ensure that hydrogen production from existing nuclear is eligible under the final CHPS.

Use of Credits and Offsets

There are many market-based tools to account for carbon-free electricity generation. As we think about the production of hydrogen, it's easy to imagine a world where hydrogen producers are either purchasing power directly from a power plant or utilizing electricity from the grid. In the first scenario, accounting for the carbon-free attributes of the generation source is fairly straightforward. Utilizing power purchase agreements (PPAs) or co-locating hydrogen production with carbon-free generation both ensure that the resulting hydrogen will be low in carbon intensity. However, complications occur when the power purchasing arrangements are not as straightforward. Utilizing virtual PPAs, credits for low-carbon electricity, or carbon offsets all introduce uncertainty in the final life-cycle carbon intensity of the resulting hydrogen. DOE should be clear in their final CHPS

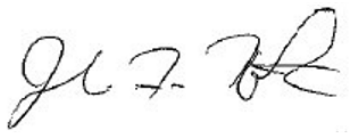
guidance that crediting carbon-free generation in hydrogen production should be both location and time-matched.

One key market-based solution that DOE should include in the final CHPS is 24/7 Carbon-free Electricity (CFE). EO 14057, Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability, set the goal of having 50 percent of federal energy procurement come from 24/7 CFE. This new product structure ensures that carbon-free electricity being purchased by the user is being actually delivered by the producer every hour of the day. This is an important market-based tool in producing low-carbon hydrogen from electricity purchased off the grid. By ensuring that electricity used for hydrogen production is coming from carbon-free resources at all hours of production, there is less uncertainty in the true life-cycle carbon emissions associated with the production. DOE should utilize CHPS as an opportunity to drive 24/7 CFE adoption in U.S. hydrogen production.

Conclusion

NEI is grateful for all of the work DOE is doing to ensure the U.S. achieves its climate goals. The CHPS is a critical guide for creating a hydrogen economy that values low-carbon intensity hydrogen. The work being done now will determine the ultimate adoption of hydrogen in a net-zero economy, so it is crucial that these standards send the right messages to industry. By crediting existing carbon-free generation and encouraging the utilization of 24/7 CFE in hydrogen production through the CHPS, DOE will lay the foundation for deep decarbonization. If my staff or I can be of any assistance as DOE finalized the CHPS, please don't hesitate to contact me.

Sincerely,



John F. Kotek